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Education

Ph.D., 1991. Department of Atmospheric and Oceanic Science, University of Michigan, Ann Arbor, MI.
M.Sc., 1986. Department of Oceanography, Florida State University, Tallahassee, FL
B.Sc., 1981. Department of Biology, with a secondary Teaching Certificate, College of Education, Michigan State University, East Lansing, MI

Professional Appointments

Associate Director, CILER, U. of Michigan, Ann Arbor, MI. April 2009 to present
Research Scientist, CILER, U. of Michigan, Ann Arbor, MI. Sept. 2015 to present
Assoc. Research Scientist, CILER, U. of Michigan, Ann Arbor, MI. Sept. 2009 to Aug 2015
Asst. Research Scientist, CILER, U. of Michigan, Ann Arbor, MI. Dec. 1997 to Aug 2009
Director, CILER, University of Michigan, Ann Arbor, MI. Sept. 2000 to Jun. 2005.
Visiting Asst. Research Scientist, CILER, U. Michigan, Ann Arbor, MI. Jan.1995 to Nov. 1997
Post-doctoral Research Fellow, CILER, U. Michigan, Ann Arbor, MI. Sept. 1991 to Dec. 1994

Research Interests

Nutrient cycling and lower food-web dynamics in the Great Lakes with an emphasis on quantifying the ecological impacts of invasive species. Understanding and predicting harmful algal blooms in the Great Lakes. Development and application of in situ sensors for research and management applications in the Great Lakes and coastal oceans. Prevention and control of non-indigenous species introductions associated with shipping activities.

Honors and Awards

IOOS Great Lakes Observing System: Special Recognition Award, November 2013
University of Michigan: Research Faculty Achievement Award, May 2013
IAGLR: Chandler-Misener Award for 2008 Best Paper in JGLR, May 2009
NOAA-OAR : Outstanding Scientific Paper Award, September 2008
NOAA-GLERL: CILER Employee of the Year, February 2008
NOAA-GLERL: Outstanding CILER Mentor Award, February 2008
NOAA-GLERL: Certificate for Exceptional Service, February 2008
NOAA-GLERL : Outstanding CILER Mentor Award, January 2006
IAGLR: Appreciation Award for Chairing 2005 Annual Conference, June 2005
NOAA-GLERL: Certificate for Exceptional Service, February 2004
NOAA-GLERL Certificate of Excellence, October 2000
Tau Beta Pi Engineering Honor Society, January 1989
University of Michigan: Distinguished Graduate Student Award, March 1988

Faculty Experiences

Mentor for the University of Michigan, UROP program, 1998 - present
Co-coordinator and Mentor for CILER summer fellows, 2001 – present
Advisor of Christine Knight, MSc., SNRE, Univ. of Michigan, current
Advisor of Nathan Gainer, MSc. Degree, SNRE, Univ. of Michigan, Aug 2014

Advisor of Lindsay Cain, MSc. Degree, SNRE, Univ. of Michigan, Dec 2012
Co-Advisor, Samantha Giraud, MSc. Degree, SNRE, Univ. of Michigan, 2011
Committee member of Elizabeta Brinski, Ph.D. Degree, University of Windsor, 2010
Co-advisor of Bryan Sederburg, MSc. Degree, SNRE, Univ. of Michigan, 2010
Committee member Michelle Lelli, MSc. Degree, SNRE, Univ. of Michigan, 2009
Committee member of Lori Ivan, Ph.D. Degree, SNRE, Univ. of Michigan, 2008
Co-advisor for Derek Crane, M.Sc. Degree, SNRE, Univ. of Michigan, 2008
Co-advisor of Nate Bosch, Ph.D. Degree, SNRE, Univ. of Michigan, 2007
Committee member of Megan Agy, M.Sc. Degree, SNRE, Univ. of Michigan, 2001

Professional Activities

Board member of the Canadian Aquatic Invasives Species Network II, 2011- present
Chief Scientist for the Alliance for Coastal Technologies, 2006 – present
Committee member of Great Lakes Aquatic Nuisance Species Panel, 2001 – present
Member of International Association for Great Lakes Research, 1992 - present
Co-Chair of 48th annual conference of International Association for Great Lakes Research
Board member of International Association for Great Lakes Research, 2002 - 2005
Committee member of State of Michigan Aquatic Nuisance Species Council, 2002 - 2005
External reviewer of proposals from various funding agencies
External reviewer of submitted manuscripts for various aquatic science journals
Guest Lecturer and Invited Speaker at multiple Universities

Peer-reviewed Publications

- Drake, L.A., M.N. Tamburri, M.R. First, G.J. Smith, and **T.H. Johengen** (2014). *How many organisms in ballast water discharge? A framework for validating and selecting compliance monitoring tools.* Marine Pollution Bulletin, 86:122-128.
- Stow, C.A., J. Dyble, D. R. Kashian, **T.H. Johengen**, K. Peters Winslow, S.D. Peacor, S.N. Francoeur, A.M. Burtner, D. Palladino, N. Morehead, D. Gossiaux, Y.K. Cha, S.S. Qian, D. Miller (2014). *Phosphorus Targets and Eutrophication Objectives in Saginaw Bay: A 35 Year Assessment.* Phosphorus targets and eutrophication objectives in Saginaw Bay, Lake Huron: A 35-year assessment. Journal of Great Lakes Research 40(Supplement 1):4-10.
- Tang, H., H.A. Vanderploeg, **T.H. Johengen**, and J.R. Liebig (2014). *Selective feeding of quagga mussels (Dreissena rostriformis bugensis) on the phytoplankton community in Saginaw Bay.* Journal of Great Lakes Research 40(Supplement 1):83-94.
- Lavrentyev, P.J., H.A. Vanderploeg, G. Franze, D.H. Chacin, J.R. Liebig, and **T.H. Johengen** (2014). *Microzooplankton distribution, dynamics, and trophic interactions relative to phytoplankton and quagga mussels in Saginaw Bay, Lake Huron.* Journal Great Lakes Research 40(Supplement 1): 95-105.
- Bunnell, D.B., R.P. Barbiero, S.A. Ludsin, C.P. Madenjian, G.J. Warren, D.M. Dolan, T.O. Brenden, R. Briland, O.T. Gorman, J.X. He, **T.H. Johengen**, B.F. Lantry, B.M. Lesht, T.F. Nalepa, S.C. Riley, C.M. Riseng, T.J. Treska, I. Tsehaye, D.M. Warner, M.G. Walsh, and B.C. Weidel (2014). *Changing ecosystem dynamics in the Laurentian Great Lakes: exploring evidence for bottom-up and top-down regulation.* BioScience. 64 (1):26-39.
- Johengen, T.H.**, Vanderploeg, H.A. and J.R. Liebig (2013). *Effects of algal composition, seston stoichiometry, and feeding rate on zebra mussel (Dreissena polymorpha) nutrient excretion in*

- two Laurentian Great Lakes*. In, Quagga and Zebra Mussels: Biology, Impacts, and Control, Second Edition. T.F. Nalepa, and D.W. Schlosser (Eds.). CRC Press, Boca Raton, FL, 445-459 pp.
- Vanderploeg, H.A., A.E. Wilson, **T.H. Johengen**, J. Dyble, O. Sarnelle, J.R. Liebig, S.D. Robinson, and G.P. Horst (2013). *The role of selective grazing by dreissenid mussels in promoting toxic Microcystis blooms and other changes in phytoplankton composition in the Great Lakes*. In, Quagga and Zebra Mussels: Biology, Impacts, and Control, Second Edition. T.F. Nalepa, and D.W. Schlosser (Eds.). CRC Press, Boca Raton, FL, 509-523 pp.
- Marko, K.M., Rutherford, E.S., Eadie, B.J., **Johengen, T.H.**, and M.B. Lansing (2013). *Delivery of nutrients and seston from the Muskegon River watershed to nearshore Lake Michigan*. J. Great Lakes Research 39(4):10 pp. (DOI:10.1016/j.jglr.2013.08.002).
- Shuchman, R.A., G.A. Leshkevich, M.J. Sayers, **T.H. Johengen**, C.N. Brooks, and D. Pozdnyakov (2013). *An algorithm to retrieve chlorophyll, dissolved organic carbon, and suspended minerals from Great Lakes satellite data*. Journal of Great Lakes Research 39 (Supplement 1): 14-33 (DOI:10.1016/j.jglr.2013.06.017).
- Michalak, A.M., E.J. Anderson, D. Beletsky, S. Boland, N.S. Bosch, T.B. Bridgeman, J.D. Chaffin, K.Cho, R. Confesor, I. Daloglu, J.V. DePinto, M.A. Evans, G.L. Fahnenstiel, L. He, J.C. Ho, L. Jenkins, **T.H. Johengen**, K.C. Kuo, E. LaPorte, X. Liu, M.R. McWilliams, M.R. Moore, D.J. Posselt, R.P. Richards, D. Scavia, A.L. Steiner, E. Verhamme, D.M. Wright, and M.A. Zagorski (2013). *Record-setting algal bloom in Lake Erie caused by agricultural and meteorological trends consistent with expected future conditions*. PNAS, April 16, 2013, vol. 110, no. 16: www.pnas.org/cgi/doi/10.1073/pnas.1216006110
- He, C., C. DeMarchi, W. Tao, and **T.H. Johengen** (2013). *Modeling Distribution of Point and Nonpoint Sources Pollution Loadings in Saginaw Bay Watersheds, Michigan*. In P. Lawrence (Ed). Geospatial Tools for Urban Water Resources. Springer. pp97-114.
- Zhou, Y., Obenour, D., Scavia, D., **Johengen, T.** and A. Michalak (2013). *Spatial and Temporal Trends in Lake Erie Hypoxia, 1987-2007*. Environmental Science & Technology, 47:899-905.
- Wang, T.N., S.A. Bailey, D.F. Reid, **T.H. Johengen**, P.T. Jenkins, C.J. Wiley, and H.J. MacIsaac (2012). *Efficacy of NaCl brine for treatment of ballast water against freshwater invasions*. J. Great Lakes Research, 38:72-77.
- Ivan, L.N., E.S. Rutherford, and **T.H. Johengen** (2011). *Impacts of adfluvial spawners on water chemistry and biotic biomass in two Great Lakes tributaries*. Trans. American Fisheries Journal, 140(6): 1670-1682.
- Tamburri, M.N., T.H. Johengen, M.J. Atkinson, C.Y. Robertson, H. Purcell, G.J. Smith, A. Pinchuk, and E. Buckley (2011). *Alliance for Coastal Technologies: Advancing Moored pCO₂ Instruments in Coastal Waters*. Marine Technology Society Journal, 45(1):43-51.
- Crane, D., **T.H. Johengen**, and J.D. Allan (2011). *Assessment of quantitative food web metrics for investigating the influence of land use on warm water fish diets*. Hydrobiologia 664:1-15, doi 10.1007/s10750-010-0578-z.

- Read, J., V. Klump, **T. Johengen**, D. Schwab, K. Paige, S. Eddy, E. Anderson, and C. Manninen (2010). *Working in Freshwater: The Great Lakes Observing System Contributions to Regional and National Observations, Data Infrastructure and Decision-support*. Marine Technology Society Journal, 44(6): 84-98.
- DeMarchi, C., Tao, W., **Johengen, T.H.**, and Stow, C.A. (2010). *Uncertainty in Phosphorous Load Estimation from a Large Watershed in the Great Lakes Basin*. Proceedings of the International Conference SimHydro 2010: Hydraulic modeling and uncertainty, June 2-4, 2010, Sophia-Antipolis, France. Société Hydrotechnique de France, Paris, France.
- Cha, Y.K., C.A. Stow, K.H. Reckhow, C. DeMarchi, and **T.H. Johengen** (2010). *Phosphorus load estimation in the Saginaw River, MI using a Bayesian hierarchical/multilevel model*. Water Research 44: 3270-3282.
- Lu, Y., P.A. Meyers, **T.H. Johengen**, B.J. Eadie and J.A. Robbins (2010). *$\Delta^{15}N$ values in Lake Erie sediments as indicators of nitrogen biogeochemical dynamics during cultural eutrophication*. Chemical Geology, 273 (2010): 1-7.
- Bosch, N.S., **T.H. Johengen**, J.D. Allan and G.W. Kling (2009). *Nutrient fluxes across reaches and impoundments in two southeastern Michigan watersheds*. Lake and Reserv. Management, 25:389-400.
- Fahnenstiel, G., Y. Hong, D. Millie, M. Doblin, **T. Johengen** and D. Reid (2009). *Marine dinoflagellates cysts in the ballast tank sediments of ships entering the St. Lawrence Great Lakes*. Verh. Internat. Verein. Limnol., v30, Part 7, 1035-1038, Stuttgart, July 2009.
- Boss, E., L. Taylor, S. Gilbert, K. Gundersen, N. Hawley, C. Janzen, **T. Johengen**, H. Purcell, C. Robertson, D.W. Schar, G.J. Smith, and M. Tamburri (2009). *Comparison of inherent optical properties as a surrogate for particulate matter concentration in coastal waters*. Limnol. Ocean. Methods, 7:1-8.
- Santagata, S., K. Bacela, D.F. Reid, K. Mclean, J.S. Cohen, J.R. Cordell, C.W. Brown, **T.H. Johengen** and G.M. Ruiz (2009). *Concentrated sodium chloride 'brine' solutions as an additional treatment for preventing the introduction of non-indigenous species in the ballast tanks of NOBOB vessels*. Environ. Toxicology and Chemistry, 28(2): 346-353.
- Vanderploeg, H.A., **Johengen, T.H.** and J.R. Liebig (2008). *Feedback between zebra mussel selective feeding and algal composition affects mussel condition: Did the regime changer pay a price for its success?* Freshwater Biology, doi:10.1111/j.1365-2427.2008.02091.x.
- Johengen, T.**, B.A. Biddanda, and J.B. Cotner (2008). *Stimulation of Lake Michigan plankton metabolism by sediment resuspension and river runoff*. J. Great Lakes Res. 34:213-227.
- Santagata, S., Z.R. Gasiu-naite, E. Verling, J.R. Cordell, K. Eason, J.S. Cohen, K. Bacela, G. Quilez-Badia, **T.H. Johengen**, D.F. Reid, and G.M. Ruiz (2008). *Effect of osmotic shock as a management strategy to reduce transfers of nonindigenous species among low-salinity ports by ships*. Aquat. Inv. 3(1), 61-76.

- Gray, D.K., **T.H. Johengen**, D.F. Reid and H.J. MacIsaac. (2007). *Efficacy of open-ocean ballast water exchange as a means of preventing invertebrate invasions between freshwater ports*. *Limnology and Oceanography*, 52(6):2386-2397.
- Vanderploeg, H.A., Johengen, T.J., Lavrentyev, P.J., Chen, C., Lang, G.A., Agy, M.A., Bundy, M.A., Cavaletto, J.F., Eadie, B.J., Liebig, J.R., Miller, G.S., and S.A. Ruberg (2007). *Anatomy of the recurrent coastal sediment plume in Lake Michigan and its impacts to light climate, nutrients, and plankton*. *Journal of Geophysical Research*, 112, C03S90, doi:10.1029/2004JC002379.
- Hawley, N., **T. Johengen**, Y. Rao, S. Ruberg, D. Beletsky, S. Ludsins, B. Eadie, D. Schwab, T. Croley, and S. Brandt (2007). *Hypoxia in Lake Erie and The International Field Years for Lake Erie (IFYLE)*. EOS Transactions.
- Biddanda, B. A., D. F. Coleman, **T. H. Johengen**, S. A. Ruberg, G. A. Meadows, H. W. VanSumeren, R. R. Rediske and S. T. Kendall (2006). *Exploration of a submerged sinkhole environment in Lake Huron*. *Ecosystems*, 9: 828-842.
- Ruberg, S.A., D.F. Coleman, **T.H. Johengen**, G.A. Meadows, H.W. Van Sumeren, G.A. Lang, B.A. Biddanda (2005). *Groundwater Plume Mapping in a Submerged Sinkhole in Lake Huron*. *Marine Technology Series*, 39(2):65-69.
- Bailey, S., I. Duggan, K. Nandakumar, I.C. Duggan, C.D.A. van Overdijk, **T.H. Johengen**, D.F. Reid, and H.J. MacIsaac (2005). *In situ hatching of invertebrate diapausing eggs from ship' ballast sediment*. *Biodiversity Research, Diversity Distrib.*, 11:453-460.
- Chen, C., L. Wang, J. Qi, H. Liu, J. W. Budd, D. J. Schwab, D. Beletsky, H. A. Vanderploeg, B. J. Eadie, **T. H. Johengen**, J. Cotner, and P. J. Lavrentyev (2004). *A modeling study of benthic detritus flux's impacts on heterotrophic processes in Lake Michigan*. *J. Geophysical Research* 109(C10S11):13.
- Nassauer, J.I., J. D. Allan, **T. Johengen**, S. Kosek, and D. Infante (2004). *Exurban Residential Subdivision Development: Effects on Water Quality and Public Perception*. *Urban Ecosystems*, 7(3): 267-291.
- Lohrenz, S. E, G.L. Fahnenstiel, D.F. Millie, O.M. Schofield, **T.H. Johengen** and T. Bergmann. (2004). *Spring phytoplankton photosynthesis, growth and primary production and relationships to a recurrent coastal sediment plume and river inputs in southeastern Lake Michigan*. *J. Geophysical Research*, 109:C10S14 13 pp.
- Gardner, W.S., P. Lavrentyev, J. Cavaletto, M. McCarthy, B. Eadie, **T. Johengen**, and J. Cotner (2004). *Distribution and dynamics of nitrogen and microbial plankton in southern Lake Michigan during spring transition 1999-2000*. *J. Geophysical Research*, 109:C03007.
- Bailey, S., I. Duggan, C. van Overdijk, **T. Johengen**, D. Reid, and H. MacIsaac (2004). *Salinity Tolerance of Diapausing eggs of freshwater zooplankton*. *Freshwater Biology*, 49(3):286-295.

- Millie, D. F., Fahnenstiel, G. L., Lohrenz, S. E., Carrick, H. J., **Johengen, T. H.**, & Schofield, O. (2003). *Physical-biological coupling in southern Lake Michigan: influence of episodic resuspension on phytoplankton*. *Aquatic Ecology*, 37: 393-408.
- Madenjian, C., G. Fahnenstiel, **T. Johengen**, T. Nalepa, H. Vanderploeg, G. Fleischer, P. Schneeberger, D. Benjamin, E. Smith, J. Bence, E. Rutherford, D. Lavis, D. Robertson, D. Jude, and M. Ebener (2002). *Dynamics of the Lake Michigan food web, 1970-2000*. *Can J Fish Aquatic Science*, 59:736-753.
- Chen, C., R. Ji, D.J. Schwab, D. Beletsky, G.L. Fahnenstiel, M. Jiang, **T.H. Johengen**, H. Vanderploeg, B. Eadie, J.W. Budd, M.H. Bundy, W. Gardner, J. Cotner, and P.J. Lavrentyev (2002). *A model study of the coupled biological and physical dynamics in Lake Michigan*. *Ecol. Modeling*, 152:145-168
- Ji, R., C. Chen, J.W. Budd, D.J. Schwab, D. Beletsky, G.L. Fahnenstiel, **T.H. Johengen**, H. Vanderploeg, B. Eadie, J. Cotner, W. Gardner, and M.H. Bundy (2002). *Influences of suspended sediments on the ecosystem in Lake Michigan: a 3-D coupled bio-physical modeling experiment*. *Ecol. Modeling*, 152:169-190.
- Eadie, B., D. Schwab, **T. Johengen**, P. Lavrentyev, G. Miller, R. Holland, G. Leshkevich, M. Lansing, N. Morehead, J. Robbins, N. Hawley, D. Edgington, and P. Van Hoof (2002). *Particle transport, nutrient cycling, and algal community structure associated with a major winter-spring resuspension even in southern Lake Michigan*. *J. Great Lakes Res.*, 28(3):324-337.
- Vanderploeg, H.A., J.R. Liebig, W.W. Carmichael, M.A. Agy, **T.H. Johengen**, G.L. Fahnenstiel, and T.F. Nalepa (2001). *Zebra mussel (Dreissena polymorpha) selective filtration as a mechanism of Microcystis bloom promotion in Saginaw Bay (Lake Huron) and Lake Erie*. *Can. J. Fish Aquatic. Science*, 58: 1208-1221.
- Gardner, W.S., L. Yang, J.B. Cotner, **T.H. Johengen**, and P. J. Lavrentyev (2001). *Nitrogen dynamics in sandy freshwater sediments (Saginaw Bay, Lake Huron)*. *J. Great Lakes Res.* 27(1):84-97.
- Fanslow, D.L., T.F. Nalepa, and **T.H. Johengen** (2001). *Seasonal changes in the respiratory electron transport system (ETS) and respiration of the zebra mussel, Dreissena polymorpha in Saginaw Bay, Lake Huron*. *Hydrobiologia*, 448: 61-70.
- Cotner, J.B., **T.H. Johengen**, and B.A. Biddanda (2000). *Intense winter heterotrophic production stimulated by benthic resuspension*. *Limnol. and Ocean.* 45:1672-1676.
- Cotner, J.B., R.H. Sada, H. Bootsma, **T.H. Johengen**, J.F. Cavaletto, and W.S. Gardner (2000). *Nutrient limitation of heterotrophic bacteria in Florida Bay*. *Estuaries*, 23(5):611-620.
- Nalepa, T., G. Fahnenstiel, and **T. Johengen** (1999). *Impacts of the Zebra Mussel (Dreissena polymorpha) on Water Quality: A Case Study in Saginaw Bay, Lake Huron*. In, R. Claudi & J. Leach (Eds), *Non-indigenous Freshwater Organisms in North America; their biology and impacts*. CRC Press LLC, p255-271.
- Lavrentyev, P.J., H.A. Bootsma, **T.H. Johengen**, J.F. Cavaletto, and W.S. Gardner (1998). *Microbial plankton response to resource limitation: insights from the community structure and seston stoichiometry in Florida Bay*. *Marine Ecol. Prog. Series*, 165: 45-57.

- Tomaszek, J., W. Gardner, and **T. Johengen** (1997). *Denitrification in sediments of a Lake Erie coastal wetland (Old Woman Creek, Huron, Ohio)*. J. Great Lakes Research, 23: 403-415.
- Eadie, B., D. Schwab, G. Leshkevich, **T. Johengen**, R. Assel, N. Hawley, R. Holland, M. Lansing, P. Lavrentyev, G. Miller, N. Morehead, J. Robbins, and P. Van Hoof (1996). *Recurrent Coastal Plume in southern Lake Michigan*. EOS, Trans., AGU, 77:337-338.
- Johengen, T.**, T. Nalepa, G. Fahnenstiel, and G. Goudy (1995). *Nutrient changes in Saginaw Bay, Lake Huron after the establishment of the zebra mussel *Dreissena polymorpha**. J. Great Lakes Research, 21: 449-464.
- Gardner, W., J. Cavaletto, T. Johengen, J. Johnson, R. Heath, and J. Cotner (1995). *Effects of the zebra mussel (*Dreissena polymorpha*) on community nitrogen dynamics in Saginaw Bay, Lake Huron*. J. Great Lakes Research, 21: 529-544.
- Fahnenstiel, G., G. Lang, T. Nalepa and T. Johengen (1995). *Effects of the zebra mussel (*Dreissena polymorpha*) colonization on water quality parameters in Saginaw Bay, Lake Huron*. J. Great Lakes Research, 21: 435-448.
- Holland, R., T. Johengen, and A. Beeton (1995). *Trends in nutrient concentrations in Hatchery Bay, Bass Island area, western Lake Erie before and after *Dreissena polymorpha**. Can. J. Fish. Aquatic Sciences, 52: 1202-1209.
- Johengen, T.**, O. Johannsson, G. Pernie, and E. Millard (1994). *Temporal and seasonal trends in nutrient dynamics and biomass measures in lakes Michigan and Ontario in response to phosphorus control*. Can. J. Fish. Aquatic Sciences, 51: 2570-2578.
- Johengen, T.** and P. LaRock (1993). *Quantifying nutrient removal processes within a constructed wetland designed to treat urban stormwater runoff*. J. Ecological Engineering, 2: 347-366.
- Moll, R., **T. Johengen**, A. Bratkovich, J. Saylor, G. Meadows, L. Meadows, and G. Pernie (1993). *Vernal thermal fronts in large lakes: A case study from Lake Michigan*. Verh. Internat. Verein. Limnol., 25: 65-68.
- Johengen, T.**, A. Beeton, and D. Rice (1989). *Evaluating the effectiveness of best management practices to reduce agricultural nonpoint source pollution*. Journal of Lake & Reservoir Management, 5: 63-70.
- Tuovilla, B.J., **T.H. Johengen**, P.A. LaRock, J.B. Outland, D.H. Esry, and M. Franklin (1989). *An evaluation of the Lake Jackson (Florida) filter system and artificial marsh on nutrient and particulate removal from stormwater runoff*. In, K.R. Reddy and W.H. Smith (Eds). Aquatic Plants for Water Treatment and Resource Recovery. Magnolia Publishing Inc., FL. pp 271-278.

Other Publications

Co-authored as Chief Scientist 38 sensor technology verification reports for the Alliance for Coastal Technologies covering technologies including dissolved oxygen, chlorophyll fluorescence, turbidity, nutrients, salinity, pCO₂, hydrocarbons, and pH (www.act-us.info).

- Stow, C. and T. Hook (Eds) with D. Beletsky, R. Beletsky, A. Burtner, J. Bredin, J. Cavaletto, Y. Cha, C. DeMarchi, J. DePinto, J. Dyble, D. Fanslow, S. Francoeur, D. Gossiauz, N. Hawley, C. He, **T. Johengen** and D. Kashian (2013). *Saginaw Bay Multiple Stressors Summary Report*. NOAA Technical Memorandum GLERL-160, Great Lakes Environmental Research Laboratory, Ann Arbor, MI, 51 pp.
- Tamburri, M.N., M.J. Atkinson, E.N. Buckley, **T.H. Johengen**, M.E. Luther, G.A. Meadows and G.J. Smith (2012). *Technologies to Meet IOOS and Societal Needs*. A white paper prepared for the NOAA Integrated Ocean Observing System program.
- Tao, W., C. DeMarchi, **T.H. Johengen**, C. He, and C.A. Stow (2010). *Estimating phosphorus load from a large watershed in the Great Lakes basin*. Proceedings of the 2010 International Conference on Challenges in Environmental Science and Computer Engineering, Wuhan, China. IEEE Computer Society's Conference Publishing Services, 427-430 pp.
- Reid, D., **T. Johengen**, H. MacIsaac, F. Dobbs, M. Doblin, L. Drake, G. Ruiz (2007). *Identifying, Verifying, and Establishing Options for Best Management Practices for NOBOB Vessels*, Final Report to the Great Lakes Protection Fund, June 2007. 119pp.
- Johengen, T.H.** et. al. for the Alliance for Coastal Technologies (2007). *Evaluating approaches and technologies for monitoring organic contaminants in the aquatic environment*. Workshop Proceedings, Ann Arbor, MI., June 21-23, 2006. UMCES Technical Report Series: Ref. No. [UMCES]CBL 07-022.
- Meadows, G. and T. Johengen for the Alliance for Coastal Technologies (2005). *Application of drifting buoy technologies for coastal watershed and ecosystem modeling*. Workshop Proceedings, Ann Arbor, MI., June 5-7, 2005. UMCES Technical Report Series: Ref. No. [UMCES]CBL 05-106.
- Johengen, T.H.**, D. Reid, G. Fahnenstiel, H. MacIsaac, F. Dobbs, M. Doblin, R. Ruiz, and P. Jenkins (2005). *Assessment of Transoceanic NOBOB Vessels and Low-salinity Ballast Water as Vectors for Nonindigenous Species Introductions into the Great Lakes*. Final Report to the Great Lakes Protection Fund, March 2005. 285pp.
- Meadows, G. and **T. Johengen** for the Alliance for Coastal Technologies (2004). *Applications of mini-ROV systems for coastal and estuarine research*. Workshop Proceedings, Ann Arbor, MI., July 11-13, 2004. UMCES Technical Report Series: Ref. No. [UMCES]CBL 04-128.
- Johengen, T.H.** et. al. for the Alliance for Coastal Technologies (2004). *Developing technologies for environmental micro-chemical sensors*. Workshop Proceedings, Ann Arbor, MI., April 20-22, 2004. UMCES Technical Report Series: Ref. No. [UMCES]CBL 04-128.
- D. Allan, **T. Johengen**, and E. Rutherford. 2002. *Nutrient Loading and its Relevance to the Great Lakes Basin*. A White Paper prepared for a University of Michigan Initiative in Great Lakes Research.
- D. Jude, E. Stoermer, T. Johengen, and T. Perakis. 2002. *Non-indigenous species in the Great Lakes: Ecology, interactions, impacts and future research directions*. A White Paper prepared for a University of Michigan Initiative in Great Lakes Research.

Johengen, T. H., T. F. Nalepa, G. A. Lang, D. L. Fanslow, H. A. Vanderploeg, and M. A. Agy (2000). Physical and chemical variables of Saginaw Bay, Lake Huron in 1994-1996. NOAA Technical Memorandum GLERL-115, Great Lakes Environmental Research Laboratory, Ann Arbor, MI, NTIS# PB2000-102421/XAB, 39 pp.

Nalepa, T.F., G.L. Fahnenstiel, M.J. McCormick, **T.H., Johengen**, G. A. Lang, J.F. Cavaletto, and G. Goudy (1966). Physical and chemical variables of Saginaw Bay, Lake Huron in 1991-1993. NOAA Technical Memorandum GLERL-91, Great Lakes Environmental Research Laboratory, Ann Arbor, MI, 78 pp.

Johengen, T.H. and A.M. Beeton (1992). *The effects of temporal and spatial variability on monitoring agricultural nonpoint source pollution.* In, Proceedings of the 1992 Rural Clean Water Program Symposium. pp87-95.

LaRock, P., B. Tuovilla, **T. Johengen**, J. Outland, C. Watkins, and E. Livingston (1990). *The role of aquatic marshland plants in reducing pollutant loads to a Florida Lake.* In, Proceedings of Florida North American Lake Management Society 2nd Annual Meeting. Pp. 41-50.

Published Conference Abstracts (First-authored)

Does it Matter How you Stir the Pot? Examination of Time Series Trends in Water Quality and Harmful Algal Blooms as Related to Wave Events and Hydrodynamics in Western Lake Erie. 57th Annual IAGLR Conference, May 2014, Hamilton, ONT.

Biological and Physical Attributes of the Maumee River Plume in Western Lake Erie. 53rd Conference of the International Association for Great Lakes Research, May 2010, Toronto, Ontario.

Evaluating Sediment and Nutrient Loading for the Saginaw River Using an Intensive Sampling Program. 52nd Conference of the International Association for Great Lakes Research, May 2009, Toledo, OH.

The Use of Instrumented Ballast Tanks to Examine Ballast Management Practices. 50th Conference of the International Association for Great Lakes Research, College Park, PA. June 2007.

Spatial and Temporal Development of Hypoxia and Associated Trophic Conditions in Lake Erie During 2005. 49th Conference of the International Association for Great Lakes Research, Windsor, Canada. June 2006.

Promoting the Development and Evaluation of Sensor Technologies Through the NOAA Alliance for Coastal Technologies Program. 48th Conference of the International Association for Great Lakes Research, Ann Arbor, MI. June 2005.

Assessment of NOBOB ballast tank residual as a potential vector of ANS: A summary of field activities and chemical conditions within the tanks. 46th Conference of the International Association for Great Lakes Research, Chicago, IL. June 2003.

The Great Lakes NOBOB Study: 38 ships and 82 ballast tanks later. 12th Aquatic Invasive Species Conference, Windsor, Ontario, June 2003

Assessment of Transoceanic NOBOB Vessels as Vectors for Nonindigenous Species Introductions into the Great Lakes. State of Lake Michigan Conference, EPA/GVSU, Muskegon, MI. November 2001,

The Impact of Sediment Resuspension and Riverine Inputs on Biological Productivity in the Nearshore Zone. 44th Conference of the International Association of Great Lakes Research, Green Bay, WI. June 2001.

Assessment of Transoceanic NOBOB Vessels and Low-salinity Ballast Water as Vectors for Nonindigenous Species Introductions into the Great Lakes. 44th Conference of International Association of Great Lakes Research, Green Bay, WI. June 2001.

Chemical and Biological Distributions Associated with the Recurrent Coastal Sediment Plume in Southern Lake Michigan. 42nd Conference of International Association of Great Lakes Research, Cleveland, OH. June 1999.

Effects of food quantity and quality on nutrient excretion by zebra mussels. 40th Conference of International Association for Great Lakes Research, Buffalo, NY. June 1997.

Nutrient cycling and respiration rates of zebra mussels in Saginaw Bay, Lake Huron, Measured using in situ benthic chambers. 38th Conference of International Association for Great Lakes Research, East Lansing, MI. June 1995.

Comparison of the effects of zebra mussels on water quality and nutrient dynamics in Saginaw Bay, Lake Huron and Hatchery Bay, western Lake Erie. 37th Conference of International Association for Great Lakes Research, Windsor, Ontario. June 1994.

Comparisons of biotic community structure and nutrient dynamics in the open waters of Lake Michigan and Lake Ontario over the past decade. 36th Conference of International Association for Great Lakes Research, De Pere, WI. June 1993.

Nutrient and plankton dynamics associated with thermal front formation in Lake Michigan. 35th Conference of International Association for Great Lakes Research, Waterloo, Ontario. May 1992.

Transport and removal of nutrients within an agricultural stream: Implications for monitoring nonpoint source control at the watershed level. 53rd Meeting of American Society of Limnology & Oceanography, Halifax, Nova Scotia. June 1991.

A cost-effectiveness comparison between water quality improvements derived from point source versus nonpoint source treatment programs. 52nd Meeting of American Society of Limnology & Oceanography, Williamsburg, VA. June 1990.

Monitoring the effectiveness of best management practices to reduce agricultural nonpoint source pollution. 8th International Symposium on Lake & Watershed Management, St. Louis, MO. November 1988.

Nutrient fluxes in an artificial marsh designed for treatment of urban stormwater runoff. 49th Meeting of American Society of Limnology & Oceanography, Kingston, RI. June 1986.

Invited Presentations

Use of Continuous In Situ Water Quality Sondes for Monitoring Harmful Algal Blooms. University of Toledo, Lake Erie Center, Oregon, OH, May 15, 2015.

Impact of Invasive Dresseinid mussels on Nutrient Management and Ecosystem Health in the Laurentian Great Lakes. Shanghai Ocean University, Shanghai, China. Feb.24, 2014.

Impact of Invasive Dresseinid mussels on Nutrient Management and Ecosystem Health in the Laurentian Great Lakes. Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Nanjing, China. Feb.25, 2014.

Impact of Invasive Dresseinid mussels on Nutrient Management and Ecosystem Health in the Laurentian Great Lakes. Zhejiang University, Hangzhou, Zhejiang Province, China. Feb.28, 2014.

Water quality monitoring approaches used to understand and mitigate harmful algal blooms in Lake Erie. Zhejiang University, Hangzhou, Zhejiang Province, China. Feb.28, 2014.

Impact of Invasive Dresseinid mussels on Nutrient Management and Ecosystem Health in the Laurentian Great Lakes. Zhejiang Institute of Freshwater Fisheries. Huzhou, Zhejiang province, China. Mar. 3, 2014.

Thirty Years after Ballast Water Exchange: Pending Changes and Challenges for Controlling Invasive Species Introductions via Shipping over the Next Decade. Invited Lecture, University of Toledo Lake Erie Center, Oregon, OH. January 2013.

Prevention and Control of Invasive Species Introduction in the Great Lakes. Invited Lecture, Purdue University. West Lafayette, IN. April 2011.

A review of the science, policy and legislative actions regarding ballast water management in the Great Lakes. Invited Lecture, University of Michigan Environmental Law and Policy Program. Ann Arbor, MI. January 2010.

The Use of Instrumented Ballast Tanks to Examine Ballast Management Practices. Invited Lecture, US Coast Guard Ballast Water Conference, Chicago, IL. Sept. 2007.

The Role of Foreign Shipping and Ballast Water Management for Non-indigenous Species Introductions in the Great Lakes. Invited Briefing, U.S. House of Representatives Subcommittee on Transportation Washington, D.C. May 2007

The Use of Instrumented Ballast Tanks to Examine Ballast Management Practices. Invited Lecture, US Coast Guard Ballast Water Management Symposium, Cleveland, OH. Feb 2006.

Overview of CILER Research Tasks III and V. Invited Presentations, CILER Formal Review, Ann Arbor, MI. June 2005.

Assessment of Transoceanic NOBOB Vessels and Low-Salinity Ballast Water as Vectors for Non-indigenous Species Introductions to the Great Lakes. Invited Lecture, Great Lakes Commission Bi-annual Meeting, Buffalo, N.Y. June 2005.

Assessment of Transoceanic NOBOB Vessels and Low-Salinity Ballast Water as Vectors for Non-indigenous Species Introductions to the Great Lakes. Binational Executive Committee of the International Joint Commission, Toronto, Ontario, June 2002.

Current Grants

1. NOAA-GLERL Ocean and Human Health Program (GLRI funded); *Developing Predictive Models for Improving Coastal and Human Health and Beach Forecasting*. June 2014 – December 2015.
2. NOAA IOOS Program; *Alliance for Coastal Technologies*. June 2014 – May 2015.
3. NOAA IOOS Program; *Implementation of the Great Lakes Observing System (GLOS), 2011-2016 (Year 4)*. June 2014 – May 2015.
4. MARAD: Alliance for Coastal Technologies; *Phase X Part 2, Evaluations of Fluorometers for use in Compliance Monitoring of Ballast Water Discharge Regulations*. Sept 2013 – December 2014.
5. NOAA-GLERL (GLRI funded); *Implementation of the Great lakes Synthesis, Observations and Response System (SOAR)*. July 2014 – December 2015.
6. NOAA-GLERL (GLRI funded); *2013 Monitoring Activities for the Lake Huron CSMI and Lake Michigan Long-term Ecological Research programs*. June 2012 – May 2014.
7. UM Water Center (co-PI); *Building capacity for freshwater science: Integrating microbial genomics, environmental chemistry, and ecosystem processes to understand harmful algal blooms*. May 2014 – August 2015.
8. UM Water Center (co-PI); *Environmental DNA-based quantification of dreissenid mussels and their impacts on freshwater bacterioplankton: building the foundation for a UM program focused on the interactions between freshwater invasive species and microbial community structure and function*. May 2014 – August 2015.
9. NOAA-GLERL (GLRI funded); *Remote Sensing of Algal Blooms in support of Great Lakes Synthesis, Observations and Response System (SOAR)*. March 2014 – December 2015.
10. NOAA-GLERL (NESDIS); *Great Lakes Coastwatch Research Assistant for NOAA Coastwatch Program Element*. July 2013 – August 2014.